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Variable Wavelength Impulse Transmission

Claims the benefit of provisional patent application number 60 / 171,137.

RELATED APPLICATIONS

Not Applicable

BACKGROUND OF THE INVENTION

The invention was conceived for the need to find a competitive transmission solution especially for wireless communications as an alternative for the industry monopolization.

DESCRIPTION OF THE PRIOR ART

Prior art covers impulse transmission without carrier wave, applying either radio or electrical impulses. Further, pulse width and pulse position modulation have wide use in signal processing.

SUMMARY OF THE INVENTION

A method for transmitting data without carrier wave, applying short variable wavelength one-cycle radio or electric impulses, plus method for receiving such impulses, plus method for organizing wireless traffic that uses said transmission system.

DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts Variable Wavelength Impulse Transmission impulse cue. Impulses i1..i4 have each a unique wavelength. Impulses have their own positions inside interval t depicted by distances td1..td4 of the centers of impulses from the center of each impulse's host interval.

FIG. 2 depicts Variable Wavelength Impulse Transmission impulse reception process.

FIG. 2A depicts reception channel for the type i4 transmission impulse. Reception channel repeats continously type i4 reception impulse.

FIG. 2B depicts reception of impulse. Transmission impulse is of type i4, and reception impulse is also of type i4 (left side of figure). The co-effect of the impulses produces an impulse with the highest possible amplitude (right side of figure).

FIG. 2C depicts reception of impulse. Transmission impulse is of type i1, and reception impulse is of type i4 (left side of figure). The co-effect of the impulses produces an impulse with relatively small maximum amplitude (right side of figure).

SPECIFICATION

Variable Wavelength Impulse Transmission method

In time axis, time is divided to equal length intervals t, each of them carrying single radio or electrical impulse, the center of the impulse being at distance td from the center of the interval t (refer figure 1). The impulses have alternatively A) a predetermined number of clearly separable wavelengths, or B) infinite number of wavelengths between predetermined minimum and maximum wavelengths. Data is encoded into transmission by choosing appropriate impulse wavelength according to the value of sequence of bits of data to be sent. In case A if there are number n separate impulse wavelengths, then one impulse is able to carry number of bits of data equal to 2-based logarithm of n. In case B the transmission principle is the same as in case A, except that there is no absolute limit how many bits of data one impulse can carry, it is limited only by the transmission device's ability to distinguish closely adjacent wavelength impulses.

The cue of impulses in transmission is divided into transmission channels either by taking every nth impulse for a single channel, or by setting a predetermined order path according to which the impulses are picked for each channel.

Impulse distinguishing method in impulse receiving process

Impulses are distinguished in impulse receiving process either A) by determining the wavelength of each transmission impulse from the time difference between its positive and negative amplitude maximums, or B) by setting an own reception channel for each wavelength of impulse. In case A the transmission impulse's distance td from the transmission interval's center is zero. In case B the transmission impulse's distance td from the transmission interval's center is different for each impulse, either negative (the center of impulse is before the interval's center) or positive (the center of impulse is after the interval's center).

In case B each reception channel generates reception impulses that are of same wavelength, as with the impulses it is purported to receive (refer figure 2A) . The reception impulses are repeated in the same intervals as the interval of the said transmission system, the center of the reception

impulse being at same distance td from the center of interval t as with the transmission impulse it is meant to detect. The reception of an transmission impulse is detected as an co-amplitude effect or peak impulse which the transmission impulse and reception impulse form when they meet each other. The transmission impulse's actual wavelength is recognized by comparing the peak impulses of different reception channels and finding the peak impulse which has the greatest amplitude (refer figure 2B for a case where the transmission and reception signals are of same wavelength; and figure 2C for a case where the transmission and reception signals are of different wavelength).

Method for organizing wireless transmission traffic which uses Variable Wavelength Impulse Transmission

When using the said transmission system in wireless radio transmission data or voice communications, a single transmission channel is divided into several sub-channels by allocating different impulse wavelengths for different use if so needed. Impulse wavelengths are chosen for allocation according to the needed transmission power and the ability to pass obstacles of different wavelength impulses. The allocation is altered dynamically to optimize best overall transmission traffic every moment, when needed.